



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/642,433 | 08/15/2003 | Fred A. Brown | 917/193 | 9871 |

7590 06/10/2004

Kenneth S. Sachar
Bromberg & Sunstein LLP
125 Summer Street
Boston, MA 02110-1618

EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|-----------|
| Office Action Summary | Applicati n No. | | Applicant(s) | |
| | 10/642,433 | | BROWN, FRED A. | |
| | Examiner | | Art Unit | |
| | Burton S. Mullins | | 2834 | <i>Am</i> |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-15 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 4 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 19 November 2003 has been considered by the examiner.

Drawings

2. The formal drawings submitted 13 October 2003 have been received and are approved by the examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 5-6, 8-11, 13-15 and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohiwa et al. (US 6,710,504). Ohiwa teaches a brushless DC motor including a stator 5/6, a rotor 1 with a rotor magnet 3, and an arbor 31 to at least in part secure the rotor to the stator (Fig.1), the rotor 1 having an inner surface defining a bounded region (Figs.3&5), the detector comprising: a circuit board 11 coupled to the arbor and, at least in part, within the bounded region (Figs.3&5), and a magnetic field detector (Hall sensor 9) mounted on the

Art Unit: 2834

circuit board 11 for detecting a magnetic field produced by the rotor magnet 3, the magnetic field detector being within the bounded region (Figs.3&5).

Regarding claim 2, the board 11 is inherently flexible.

Regarding claims 3 and 15, the detector 9 is closer to the bottom end of the arbor than the top end (Fig.3).

Regarding claims 5 and 17, the detector 9 comprises a Hall chip and is mounted on the board.

Regarding claim 8, the detector 9 comprises means for detecting a magnetic field; the circuit board 11 comprises means for mounting the detector 9; and means are inherent for connecting the circuit board 11 with arbor 31 within the bounded region (see Fig.5).

Regarding claim 11, Hall means 9 inherently produces a voltage proportional to the magnetic field.

5. Claims 1-3, 5, 8-10, 13-15, 17 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hsu (US 6552458). Hsu teaches a brushless DC motor including a stator ('locator') 2, a rotor 3 with a rotor magnet 32, and an arbor (bush) 21 to at least in part secure the rotor to the stator (Figs.1&3), the rotor 3 having an inner surface defining a bounded region (Fig.3), the detector comprising: a circuit board (base board) 1 coupled to the arbor 21 and, at least in part, within the bounded region (Fig.3), and a magnetic field detector (chip sensing point 121) mounted on the circuit board 1 for detecting a magnetic field produced by the rotor magnet 32, the magnetic field detector 121 being within the bounded region (Fig.3).

Regarding claim 2, the board 1 is inherently flexible.

Regarding claims 3 and 15, the detector 121 is closer to the bottom end of the arbor than the top end (Fig.3).

Regarding claim 8, the detector 121 comprises means for detecting a magnetic field; the circuit board 1 comprises means for mounting the detector; and means are inherent for connecting the circuit board 1 with arbor 21 within the bounded region (see Fig.3).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohiwa et al. Although Ohiwa does not explicitly disclose that his circuit board comprises a circuit with voltage supply, ground and stator winding connections, Fig.11 shows a prior art circuit board 11 with various drive IC parts 65 including connections to voltage supply 64, ground (not numbered) and windings 24a/24b (c.1, lines 48-55). It would have been obvious provide Ohiwa with a circuit board with such connections for the purpose of driving the motor.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Ohiwa or Hsu as applied to claim 8, in view of Molnar (US 5,895,994). Neither Ohiwa nor Hsu teach snap connection means.

Molnar teaches a motor including circuit board 64 connected to stator end cap 58 by means of snap connections 72 (Fig.1; c.4, lines 12-30) which provide rapid, precise and secure mounting of the circuit board (c.1, lines 56-64).

It would have been obvious to one of ordinary skill to provide snap connection means per Molnar to connect the circuit board to the arbor in Ohiwa or Hsu since snap connection means are desirable for rapid, precise and secure mounting of a circuit board (c.1, lines 56-64).

Allowable Subject Matter

9. Claims 4 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In both Ohiwa and Hsu, the circuit board is perpendicular to the machine/arbor axis.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Application/Control Number: 10/642,433
Art Unit: 2834

Page 6

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
03 June 2004